

ELECTRICAL SYSTEMS ASSESSMENT

Sylvester Elementary School

ELECTRICAL DISTRIBUTION SYSTEM:

- ?? The existing electrical service consists of an overhead primary service originating at a utility pole on Hanover Street. The primary service feeds a pole mounted transformer used to step down the voltage to 120/240, 1 phase, 3 wire. The service originates on a pole on the opposite side of the street then to a pole on the property, finally to the building.
- ?? The secondary service consists of a 400A, 120/240V, 1 ϕ , 3 w, distribution panel board. The panel board was manufactured by Cutler/Hammer and does have mounting space for additional breakers. The panel board is new and in very good condition.
- ?? The facility is metered on the secondary side. The meter is located on the building exterior.
- ?? The remote panel boards are generally fed from the distribution panel board. Most panels are located in storage closets, and corridors. These sub panels are old and in poor condition.
- ?? A spot check of the demand load at the meter indicated less than 150 amperes.

GENERAL WIRING:

- ?? General building wiring consists of original wire for power and lighting. Fire alarm is run in conduit and is new. Security wiring and other low tension wiring is not installed in conduit in most cases.

EXTERIOR LIGHTING:

- ?? Exterior lighting is minimal and consists of mainly flood lights mounted on building exterior.
- ?? There are no building mounted security lights with the exception of an occasional fixture at entrance doors.

INTERIOR LIGHTING:

- ?? Interior lighting consists mainly of 1' x 4' 2 lamp wraparounds in corridors. Fixtures are generally locally switched.

- ?? Lighting in basement is mounted to HVAC ducts in the corridor area.
- ?? Short pendant mounted 1' x 4' 2 lamp wraparound fixtures have been retrofitted in all classrooms. Dual switching is used in classrooms.
- ?? 1' x 4' acrylic lensed wraparound fixtures are used in kitchen and cafeteria areas.
- ?? Incandescent pendant light fixtures are in use on the stage/platform area.
- ?? Romex wiring is used in the back room of the stage area for light.
- ?? 1' x 4' 2 lamp wraparound fixtures are used in toilets.
- ?? Solid reflector, suspended HID metal halide high bay fixtures with closed bottom are in use in Gym area. Fixtures are switch controlled.

EMERGENCY LIGHTING SYSTEM:

- ?? The existing emergency lighting system is via an emergency battery pack. This system is new within the last 3 years \pm .
- ?? The exit signs appear to be of fluorescent or LED type.

FIRE ALARM SYSTEM:

- ?? The existing system consists of an overhead incoming municipal circuit originating on a utility pole on Hanover Street and terminating on an interior fire alarm control panel in the corridor stair lobby by the main door.
- ?? Manual pull stations are located throughout the facility. Units are generally surface mounted and new.
- ?? No knox box (key box) was found.
- ?? Ceiling smoke and heat detectors were observed.
- ?? Fire alarm wiring in general appears to be in EMT (conduit).
- ?? The system is a Gamewell Zans 400 model and was installed within the last 3 years \pm .
- ?? Magnetic door holders were not observed.

?? Duct smoke detectors were not observed.

SECURITY SYSTEM:

?? The security system consists mainly of motion detectors in corridors

?? Magnetic door contacts exist at frequently used exterior doors.

?? The security control panel is located in the main office.

GENERAL POWER:

?? Receptacles are limited throughout the facility.

?? A typical classroom consists of (3 - 4) duplex receptacles surface mounted for teacher and computers.

? Cable TV is supplied to the building.

GENERAL ASSESSMENT:

?? Except for incoming electrical service and fire alarm, most of the electrical systems are generally in fair to poor condition. These systems, although generally functioning, have run their course and range from obsolete to approximating the end of their useful life span.

RECOMMENDATIONS

ELECTRICAL DISTRIBUTION SYSTEM:

?? The existing service is rated at 400 amperes at 120/240 V, 1 ϕ , 3 wire or 96 kva total. Based on 33,210 s.f., 2.9 watts per s.f. are available.

?? Today's school, with heavy computer usage and depending on how much space becomes air conditioned, generally would be sized for 10 watts/s.f. demand.

?? This school would probably benefit from a 277/480 V, 3 ϕ , 4 wire service.

GENERAL WIRING:

- ?? Most of the existing wiring for lighting and receptacles would not be suitable for reuse.
- ?? We recommend all new wiring and conduits and complete removal of the existing older wiring systems (i.e. Lighting, power, etc.). The new wiring method would be pipe and wire with metal clad, MC cable, where concealed. A system of surface raceways equal to wiremold is recommended when exposed in finished spaces.

INTERIOR LIGHTING SYSTEM:

- ?? The existing lighting is in general at the end of its life.
- ?? We recommend suspended predominantly indirect luminaries in classrooms with electronic ballasts and Octron T8 fluorescent lamps.
- ?? 2' x 4' prismatic lensed fixtures in corridors and other utility spaces.
- ?? 2' x 4' parabolic fixtures with low glare louvers in offices.
- ?? The auditorium has a supplemental layer of incandescent suspended dimmable cylinders during performances and also theatrical fixtures for the platform/stage.

EXTERIOR LIGHTING SYSTEM:

- ?? New pole mounted cut-off luminaries of the Metal Halide source are recommended for parking areas and roadways/walkways. Building mounted perimeter fixtures should also be installed for security and illuminating entrances, etc..

EMERGENCY SYSTEM AND EXIT SIGNS:

- ?? The existing emergency lighting systems and exit signs are fairly new. We do not recommend any upgrades at this point in time.

FIRE ALARM SYSTEM:

- ?? The existing system is new and appears to be up to today's code standards.

SECURITY SYSTEM:

- ?? An addressable perimeter security system with a control panel with dialer and battery backup and keypads strategically located throughout the facility should be provided. All

exterior doors should be monitored. All grade level rooms with windows and corridors would have motion sensors. System should interface with lighting system to automatically turn on corridor lights upon alarm.

SOUND/PAGING, TELEPHONE/DATA, CLOCK AND CATV:

?? Refer to technology consultants report.

CLOSED CIRCUIT TV (CCTV) SYSTEM:

?? The closed circuit TV system should consist of a matrix switcher with inputs as required. Cameras should be provided on interior at main entrances and exterior as required within weatherproof enclosures. The head end equipment should consist of monitors and digital video recorders.

GENERAL POWER:

?? A system of computer grade panel boards with surge attenuators should be provided for the technology and other sensitive systems.

?? Receptacles will be provided to adequately support a modern day school facility.